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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032,049	12/21/2001	Brian A. Vaartstra	150.0118 0101	5131

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EXAMINER

LE, THAO X

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 07/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/032,049

Applicant(s)

VAARTSTRA, BRIAN A.

Examiner

Thao X Le

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-50 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 9, cited 'carried out in one step' is unclear.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

4. Claims 1-32, 34-35, 37-47, 49-50 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 6,290,736 to Evans.

Regarding to claims 1-3, Evans discloses a planarization method fig. 1 and 2 comprising: positioning a metal-containing surface of a substrate, block 100, to interface with a polishing surface, block 102, wherein the metal-containing surface comprises a

metal selected from the group consisting of Group VIIIB second and third row metal, a group IB second and third row metal, and combination thereof (although the prior art does not specially disclose the material consisting of Group VIIIB metal, a group IB metal, this feature is seen to be an inherent teaching of that material, because noble metal belongs to Group VIIIB metal), supplying a planarization composition in proximity to the interface and planarizing the substrate surface, wherein the planarization composition comprises a halogen-containing and a halide salt, step 104 and column 4 line 12, (although the prior art does not specially disclose the halide salt, this feature is seen to be an inherent teaching, because the Evans discloses a chemically active slurry to polish noble metal comprises halogen and strong basic aqueous solution such as NaOH or KOH, such combination would cause the chemical reaction to form halide metal salt, which is an inorganic salt, column 4 lines 62-67 and column 5 lines 1-15 ).

Regarding to claims 4-5, 7 Evans discloses the metal-containing surface of the substrate comprises a metal selected from the group consisting of Rh, Pd, Pt, Ir, and Ru and elemental platinum, column 2 lines 64-66, and the substrate is a semiconductor substrate, column 5 line 28.

Regarding to claim 6, Evans discloses the metal is present in an amount of about 50 atomic percent or more, inherently discloses due to the electrode comprise noble metal, column 7 line 24.

Regarding to claim 8, 17 Evans discloses the polishing surface comprises a polishing pad and fixed abrasive article, fig. 2 block 102, and planarizing composition comprises a plurality of abrasive particle, column 2 line 43.

Regarding to claim 9, Evans discloses the continuous process, fig. 2. 'Carried out in one step' is be interpreted as a continuous process, i.e. loading the substrate, introducing the polishing agent, and begin planarizing.

Regarding to claim 10-11 Evans discloses the halogen-containing compound is selected from the group consisting of  $I_2$ ,  $Cl_2$ , and  $Br_2$ , column 4 line 40.

Regarding to claim 12-15, Evans discloses the halide salt is an inorganic salt selected from the group consisting  $NaI$ ,  $KBr$ , and organic salt is selected from the group consisting of  $Me_4NF$ . Although the prior art does not specially disclose the halide salt, this feature is seen to be an inherent teaching, because the Evans discloses a chemically active slurry formulation, column 4 lines 62-67 and column 5 lines 1-15, to polish noble metal comprises bromine, iodine, or chloride, column 2 line 34 and strong basic aqueous solution such as  $NaOH$ ,  $KOH$ ,  $R_4NOH$ , column 2 line 35, such combination would cause the chemical reaction to form halide inorganic metal salt  $NaI$ ,  $KBr$ , and halide organic salt  $Me_3NHCL$ ,  $Me_4NF$ .

Regarding to claim 16, as discussed the inherent teaching in claim1, Evans discloses the halogen-containing compound is present in the planarization composition in an amount of at least about 0.1% by weight and the halide salt is present in the planarization composition in an amount of at least about 0.1% by weight, column 4 lines 62-67.

Regarding to claims 18-32, 34-35, 37-47, 49-50, as discussed in claims 1-17, Evans discloses all the limitation as claimed, including the halogen-containing compound

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is present in the planarization composition in an amount of about 1% to about 10% by weight, column 4 line 50-55.

*Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 33, 36, 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,290,736 to Evans.

Regarding to claim 33, 36, 48, Evans does not expressly disclose the halide salt is present in the planarization composition in an amount of about 1% to about 10% by weight. However, due to the acid and base chemical reaction as discussed in claims 12-15, the certain amount of halide salt is present in the planarization composition. Accordingly, it would have been obvious to use teaching of Evans in the range as claimed, because it has been held that where the general conditions of the claims are discloses in the prior art, it is not inventive to discover the optimum or workable range by routine experimentation. See *In re Aller*, 220 F.2d 454, 105 USPQ 233, 235 (CCPA 1955).

*Conclusion*

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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- a. US Patent 6,395,194
- b. US Patent 5,976,928
- c. US Patent 6,346,741

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao X Le whose telephone number is 703-306-0208. The examiner can normally be reached on M-F from 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 703-306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Thao X. Le  
June 20, 2002

  
PHAT X. CAO  
PRIMARY EXAMINER